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KARL O. HESSE 13324 MAYES ROAD HUNTERSVILLE, NC 28078			EXAMINER CLOW, LORI A	
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The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* BHOOSHAN PRAFULLA KELKAR,  
TANVEER F. SYEDA-MAHMOOD and GREGOR M. MEYER

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Appeal 2009-004635  
Application 10/629,448  
Technology Center 1600

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Before ALLEN R. MacDONALD, *Vice Chief Administrative Patent Judge*,  
ERIC GRIMES, and DONALD E. ADAMS, *Administrative Patent Judges*.

ADAMS, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

This appeal under 35 U.S.C. § 134 involves claims 1-6, 10-16, and 20, the only claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

## STATEMENT OF THE CASE

The claims are directed to a method for determining similarity between portions of gene expression profiles or genes (claims 1-6 and 20) and a program product having computer readable code stored on a recordable media for determining similarity between portions of gene expression profiles or genes (claims 10-16). Claim 1 is illustrative and is reproduced in Appellants' Appendix of "Claims Involved in this Appeal" (App. Br. 32).

Claims 1-6, 10-16, and 20 stand rejected under 35 U.S.C. § 101, as being directed to non-statutory subject matter.

We affirm. However, because our rationale expands on the rationale set forth by the Examiner, we designate the affirmance a new ground of rejection.

## ISSUE

Does the claimed method for determining similarity between portions of gene expression profiles define statutory subject matter?

## FINDINGS OF FACT

FF 1. The method of Appellants' claim 1 is performed "in a computer" (Claim 1).

FF 2. Appellants' Specification discloses that in addition to a typical computer architecture, "[t]he present invention may also be used in any digital computer architectures, including personal, minicomputer and mainframe computer environments, and in local area and wide area computer networks" (Spec. 6: 4-7).

FF 3. The method of Appellants' claim 1 "does not transform any physical object or article" (Ans. 4 (emphasis removed)).

FF 4. Appellants' Specification discloses that a

[P]referred embodiment uses a time and intensity-invariant correlation function such as that described by R. Agrawal. . . . Specifically, we employ the similar sequence algorithm embodiment of the above described correlation function in Intelligent Miner for Data . . . which was designed for business intelligence, against time varying gene expression data.

(Spec. 5: 8-18).

#### PRINCIPLES OF LAW

The machine-or-transformation test is a useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under § 101. *See Bilski v. Kappos*, 130 S.Ct. 3218, 3227 (2010). “The machine-or-transformation test is a two-branched inquiry; an applicant may show that a process claim satisfies § 101 either by showing that his claim is tied to a particular machine, or by showing that his claim transforms an article.” *In re Bilski*, 545 F.3d 943, 961-62 (Fed. Cir. 2008) (en banc).

The machine-or-transformation test is not, however, the sole test for deciding whether an invention is a patent-eligible process. *Bilski*, 130 S.Ct. at 3227. An inquiry into whether a process is merely an abstract idea provides a useful tool in determining subject matter eligibility under 35 U.S.C. § 101. *Id.* at 3229. In this regard, the *Bilski* Court directed attention to *Parker v. Flook*, 437 U.S. 584 (1978). *See Bilski*, 130 S.Ct. at 3230. The *Bilski* Court found that in *Flook*, the appellant “attempted to patent a procedure for monitoring the conditions during the catalytic conversion process in the petrochemical and oil-refining industries. The application’s only innovation was reliance on a mathematical algorithm.” *Id.* “*Flook* stands for the proposition that the prohibition against patenting abstract ideas

‘cannot be circumvented by attempting to limit the use of the formula to a particular technological environment’ or adding ‘insignificant postsolution activity.’” *Id.* (quoting *Diamond v. Diehr*, 450 U.S. 175, 191-192 (1981)).

When the broadest reasonable interpretation of a claim covers a signal per se, the claim must be rejected under 35 U.S.C. § 101 as covering non-statutory subject matter. *See In re Nuijten*, 500 F.3d 1346, 1356-57 (Fed. Cir. 2007) (transitory embodiments are not directed to statutory subject matter). *See also, Subject Matter Eligibility of Computer Readable Media*, 1351 Off. Gaz. Pat. Office 212 (Feb. 23, 2010).

#### ANALYSIS

While Appellants contend that claim 10 is representative (App. Br. 23), we find that Appellants’ arguments emphasize their process (*see, e.g.*, App. Br. 29). Accordingly, we find claim 1 representative. 37 C.F.R. § 41.37(c)(1)(vii).

The method of claim 1 is not limited to a particular machine (FF 1-2). At best, the preamble identifies the environment in which the method is performed and represents nothing more than a field-of-use limitation that is insufficient to render the otherwise ineligible process of claim 1 patent-eligible. *See Diehr*, 450 U.S. at 191. Accordingly, claim 1 fails to meet the machine prong of the machine-or-transformation test.

The method of claim 1 compares a number of gene expression profiles, lists gene expression profile pairs in clusters, and provides an output of the listing of clusters of gene expression profiles (*see* Claim 1). The claimed method does not transform a particular article into a different state or thing (FF 3). Accordingly, claim 1 fails the transformation prong of the machine-or-transformation test.

A finding that claim 1 fails to meet either prong of the machine-or-transformation test is not the endpoint for our inquiry under 35 U.S.C. § 101. We must also analyze claim 1 under the Supreme Court’s precedents on the unpatentability of abstract ideas.

Claim 1 applies the mathematical manipulation of data to determine the similarity between portions of gene expression profiles (*see* FF 4). Here, as in *Flook*, “[t]he application’s only innovation . . . [is its] reliance on a mathematical algorithm.” *Bilski*, 130 S.Ct. at 3230. We therefore conclude that claim 1 is directed to an abstract idea – the mathematical algorithm – as applied to a defined type of data. “[T]he prohibition against patenting abstract ideas ‘cannot be circumvented by attempting to limit the use of the formula to a particular technological environment’.” *Id.* Accordingly, we are not persuaded by Appellants’ contention that the process of claim 1 “is limited to a particular practical application” and “does not convert or process just any data but is limited to useful concrete and non-abstract gene expression profiles in a data base of such profiles” (App. Br. 29).

We are not persuaded by Appellants’ contentions regarding U.S. Patents 6,406,853 and 6,436,642 (App. Br. 30). Each case must be decided on its own merits. *See, e.g., In re Gyurik*, 596 F.2d 1012, 1016 (CCPA 1979).

To be complete, we recognize Appellants’ contentions regarding the phrase “stored on a recordable medium” and “carrier wave storage” (Reply Br. 6-7). Giving the claims their broadest reasonable interpretation, we find no error in the Examiner’s conclusion that “the program products stored on a recordable medium read on carrier wave storage” (Ans. 7). In this regard, we direct attention to 1351 Off. Gaz. Pat. Office 212 (Feb. 23, 2010).

### CONCLUSION OF LAW

The claimed method for determining similarity between portions of gene expression profiles fails to define statutory subject matter. The rejection of claim 1 under 35 U.S.C. § 101, as being directed to non-statutory subject matter is affirmed. Claims 2-6, 10-16, and 20 fall together with claim 1.

### TIME PERIOD FOR RESPONSE

Because our rationale expands on the rationale set forth by the Examiner, we designate the affirmance as a new ground of rejection pursuant to 37 C.F.R. § 41.50(b) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)). 37 C.F.R. § 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 C.F.R. § 41.50(b) also provides that the Appellants, **WITHIN TWO MONTHS FROM THE DATE OF THE DECISION**, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

- (1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the Examiner, in which event the proceeding will be remanded to the Examiner. . . .
- (2) Request rehearing. Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

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AFFIRMED; 37 C.F.R. § 41.50(b)

alw

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